Comment

All specimens of amniotic fluid received at our centre are tested routinely for acetylcholinesterase as a screen for neural tube defect. After electrophoresis the gel is incubated with a substrate, acetylthiocholine, which shows a non-specific cholinesterase band in all specimens; acetylcholinesterase and excessive non-specific cholinesterase show only in the presence of open neural tube defect or other gross fetal defect.[3] Amniotic fluid from this pregnancy showed no cholinesterase, and after the birth of the baby we deduced that this was because of the mother's atypical cholinesterase and that the usual form of non-specific cholinesterase (E_u^1) in amniotic fluid is of maternal and not fetal origin. If the absence of the band was due to the heterozygous state it would be a common occurrence, as the heterozygote incidence for atypical cholinesterase is about one in 25 in Britain[4]; the homozygote incidence of one in 2500, however, would make the occurrence fairly rare.

Acetylcholinesterase in amniotic fluid is of fetal origin,[1] and this could lead to the false assumption that other cholinesterases are too. Many proteins in amniotic fluid are more closely related to maternal than fetal serum, their concentrations relative to maternal proteins varying inversely with molecular weight.[5] The molecular weight of the isoenzyme of cholinesterase found in amniotic fluid is about 260 000 daltons,[1] which is probably close to the upper limit of molecular size for permeability of the chorioamniotic membrane.[5] Why the usual form of cholinesterase is detectable in ammniotic fluid and atypical cholinesterase, a molecule of similar size, is unclear. Low activity in maternal serum and reduced affinity of the substrate for this form are the most probable causes.

Our patient happened to know of her sensitivity to suxamethonium, though she had not informed her obstetrician. The absence of a band for cholinesterase in amniotic fluid could allow such a sensitivity to be detected in other subjects and could have important implications for future anaesthetics.

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Are solar keratoses more common on the driver's side?

Solar keratoses and skin cancers are common on exposed areas of skin of fair skinned people in sunny climates throughout the world.[1] Type of skin, amount of exposure to sunlight, and age are the main determining factors in their incidence.[2]

We often hear anecdotal assertions that these lesions are more frequent on the right side of people in Australia and Britain and the left side of people in the United States. This is said to be due to the greater amount of sunlight received on the driver's side of people driving motor vehicles with the window open. There are no published series to support these assertions. The aim of this study was to determine whether these anecdotal impressions are correct in Australia, which has the highest rate of skin cancer in the world.

Patients, methods, and results

A total of 766 consecutive patients (403 women, 363 men) with one or more solar keratoses were seen as part of a longitudinal study on the incidence of solar keratoses and non-melanoma skin cancer in Maryborough, Central Victoria. All patients were aged 40 and over (mean 63·2 (SD 10·8) years) and presented voluntarily in October 1985 for examination of the head and neck, forearms, and dorsum of hands. Solar keratoses were diagnosed clinically, only doubtful cases being confirmed by skin biopsy and histological examination.

Men had significantly more lesions on the right side (mean number per person 5·2) than the left (mean 4·7) when unstratified for site (Student's paired t test comparing sides in individuals: mean difference 0·463; $t=2·69$; $p<0·01$). There was no such difference in women when lesions were unstratified for site.

The table shows the numbers of lesions in women and men when stratified for side and site. Men had significantly more lesions on their right forearms and hands than on their left forearms and hands. There was no significant difference between right and left in the numbers of lesions on the head and neck in men. Women had significantly more solar keratoses on the left side of the head and neck compared with the right. There was no significant difference between right and left in the numbers of lesions on the hands and forearms in women.

Comment

Until recently, most drivers in Australia were men and most front seat passengers women (Victorian Road Traffic Authority, personal communication, 1985). In general, men are taller than women, thus making the head and neck higher in motor vehicles and more likely to be shaded by the roof. As they drive, men have to sit up further with the hands and forearms raised to grip the steering wheel, thus exposing these sites. By contrast, passengers can sit lower in the seat with the forearms and hands by their sides, protected by the door. It is the head and neck which are most exposed in this group.

The exact amount of sunlight required to cause solar keratoses and skin cancers in a susceptible population is unknown. Recent studies of the prevalence of solar keratoses in this population and a similar one in Melbourne showed a highly significant difference, with the difference in insolation being estimated to be only 14%.[3] Though solar keratoses are not skin cancers, they appear to be a marker that a person has the right skin type and has had sufficient sunlight to develop skin cancer.[2] Thus our study is further evidence that comparatively small increases in exposure to sunlight in a susceptible population may lead to an increase in sun related skin tumours. The public should be warned about the potential hazards and how to avoid them with appropriate shielding and sunscreens.

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Mean numbers of solar keratoses in women and men stratified by side and site

	Women				Men			
	Left	Right	Difference	t Test* (p)	Left	Right	Difference	t Test* (p)
Hands and forearms	2·29	2·44	0·146	1·46 (>0·1)	2·81	3·19	0·380	2·80 (<0·01)
Head and neck	1·65	1·46	0·194	2·32 (<0·05)	1·91	2·03	0·116	1·16 (>0·1)

*Student's paired t test.